

## Exhibit 300: Capital Asset Plan and Business Case Summary

### Part I: Summary Information And Justification (All Capital Assets)

#### Section A: Overview

1. **Date of Submission:** 2011-02-25

2. **Agency:** 026

3. **Bureau:** 00

4. **Name of this Investment:** JSC DA Flight Operations User Applications (UA)

5. **Unique Project (Investment) Identifier (UPI):** 026-00-01-05-01-5010-00

6. **What kind of investment will this be in FY 2012?:** Operations and Maintenance

- Planning
- Full Acquisition
- Operations and Maintenance
- Mixed Life Cycle
- Multi-Agency Collaboration

7. **What was the first budget year this investment was submitted to OMB?** FY2011

8.

- a. **Provide a brief summary of the investment and justification, including a brief description of how this closes in part or in whole an identified agency performance gap, specific accomplishments expected by the budget year and the related benefit to the mission, and the primary beneficiary(ies) of the investment.**

The User Applications investment consists of software applications utilized by Mission Control Center flight controllers. The applications enable the flight controllers to perform discipline specific tasks in support of Space Shuttle and Space Station training and flight operations. The 1150+ software applications consist of over 28 million lines of software source code. They provide capabilities for long-range mission and vehicle assessments, trajectory design, mission and increment planning, and pre-mission contingency analysis. The applications are organized as follows: · Flight Design and Dynamics applications facilitate planning and analysis of the trajectory for all phases (ascent, on-orbit, descent) of the mission of a space vehicle. · Operations applications provide the capability to schedule the activities of crew members and to prescribe procedures for crew members to execute. · Expedition Vehicle applications model the systems aboard the ISS including the Electrical Power System, the Environmental Control and Life Support System, the Thermal Control System, the Attitude Control System, and the Propulsion system. · Space Transportation Vehicle applications similarly model the systems aboard the Space Shuttle. · EVA, Robotics and Crew Systems Operations applications are used for planning and analysis of extra-vehicular activities, operation of the robotic arms of the Space Shuttle and ISS, and modeling the use of tools and equipment by astronauts. · Other applications facilitate integration and management of flight operations. The primary beneficiaries of this investment are the Space Shuttle and Space Station programs. Prior to the FY09/BY11 budget cycle, these applications were interlaced with many other projects under the USA/SPOC. In January 2009, all of the user applications were consolidated into a single new investment, Flight Operations User Applications, under the Lockheed Martin/ Facilities Development and Operations Contract (FDOC) contract. At that time it was designated as a major investment creating the need for a separate business case. The contractor provides software engineering labor and minimal IT material purchases. This investment will continue to support NASA's goals by providing applications that enable planning, command, and control capabilities for safe mission operations. Mr. Macha has overall PM responsibility for User Applications under the FDOC.

- b. **Provide any links to relevant websites that would be useful to gain additional information on the**

investment including links to GAO and IG reports.

Title	Link
NONE	

9.

a. Provide the date of the Agency's Executive/Investment Committee approval of this investment.

2010-09-02

b. Provide the date of the most recent or planned approved project charter. 2009-01-01

10. Contact information?

a. Program/Project Manager Name: \*

Phone Number: \*

Email: \*

b. Business Function Owner Name (i.e. Executive Agent or Investment Owner): Bryan Snook

Phone Number: \*

Email: \*

11. What project management qualifications does the Project Manager have? (choose only one per FAC-P/PM or DAWIA): Project manager has been validated according to FAC-P/PM or DAWIA criteria as qualified for this investment.

- Project manager has been validated according to FAC-P/PM or DAWIA criteria as qualified for this investment.
- Project manager qualifications according to FAC-P/PM or DAWIA criteria is under review for this investment.
- Project manager assigned to investment, but does not meet requirements according to FAC-P/PM or DAWIA criteria.
- Project manager assigned but qualification status review has not yet started.
- No project manager has yet been assigned to this investment.

## Section B: Summary of Funding (Budget Authority for Capital Assets)

1.

Table I.B.1: Summary of Funding

(In millions of dollars)

(Estimates for BY+1 and beyond are for planning purposes only and do not represent budget decisions)

	PY-1 and earlier	PY 2010	CY 2011 (CY Continuing Resolution)	BY 2012	BY+1 2013	BY+2 2014	BY+3 2015	BY+4 and beyond	Total
Planning:	*	*	*	*	*	*	*	*	*
Acquisition:	*	*	*	*	*	*	*	*	*
Planning & Acquisition Government FTE Costs	*	*	*	*	*	*	*	*	*
Subtotal Planning & Acquisition(DME):	*	*	*	*	*	*	*	*	*
Operations & Maintenance:	*	*	*	*	*	*	*	*	*
Disposition Costs (optional):	*	*	*	*	*	*	*	*	*
Operations, Maintenance, Disposition Government FTE Costs	*	*	*	*	*	*	*	*	*
Subtotal O&M and Disposition Costs (SS):	*	*	*	*	*	*	*	*	*
TOTAL FTE Costs	*	*	*	*	*	*	*	*	*
TOTAL (not including FTE costs):	*	*	*	*	*	*	*	*	*
TOTAL (including FTE costs):	*	*	*	*	*	*	*	*	*
Number of FTE represented by	*	*	*	*	*	*	*	*	*

**Table I.B.1: Summary of Funding**  
**(In millions of dollars)**

(Estimates for BY+1 and beyond are for planning purposes only and do not represent budget decisions)

	PY-1 and earlier	PY 2010	CY 2011 (CY Continuing Resolution)	BY 2012	BY+1 2013	BY+2 2014	BY+3 2015	BY+4 and beyond	Total
Costs:									

2. Insert the number of years covered in the column “PY-1 and earlier”: 1

3. Insert the number of years covered in the column “BY+4 and beyond”: \*

4. If the summary of funding has changed from the FY 2011 President’s Budget request, briefly explain those changes:

\*

## Section C: Acquisition/Contract Strategy (All Capital Assets)

1.

Table I.C.1 Contracts Table

Contract Status	Contracting Agency ID	Procurement Instrument Identifier (PIID)	Indefinite Delivery Vehicle (IDV) Reference ID	Solicitation ID	Alternative financing	EVM Required	Ultimate Contract Value (M)	Type of Contract/Task Order (Pricing)	Is the contract a Performance Based Service Acquisition (PBSA)?	Effective date	Actual or expected End Date of Contract/Task Order	Extent Competed	Short description of acquisition
Awarded		<a href="#">NNJ09HD46C</a>			*	*	\$1,041.0	Cost Plus Award Fee	Y	2008-11-07	2014-09-30	Y	The Facilities Development and Operations Contract(FD OC) specifies technical, managerial, and administrative work needed to ensure the availability, integrity, and reliability of missionoperations facilities supporting National Aeronautics and Space Administration (NASA) human space flight (HSF) programs requiring mission operations support. The objective of this contract

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is to consolidate efforts across the facilities covered under FODOC in order to maximize synergy for hardware and software

2. If earned value is not required or will not be a contract requirement for any of the contracts or task orders above, explain why:

\*

3.

- a. Has an Acquisition Plan been developed? If yes, please answer the questions that follow \*
- b. Does the Acquisition Plan reflect the requirements of FAR Subpart 7.1 \*
- c. Was the Acquisition Plan approved in accordance with agency requirements \*
- d. If "yes," enter the date of approval? \*
- e. Is the acquisition plan consistent with your agency Strategic Sustainability Performance Plan? \*
- f. Does the acquisition plan meet the requirements of EOs 13423 and 13514? \*
- g. If an Acquisition Plan has not been developed, provide a brief explanation.

\*



## Part II: IT Capital Investments

### Section A: General

1.
  - a. Confirm that the IT Program/Project manager has the following competencies: configuration management, data management, information management, information resources strategy and planning, information systems/network security, IT architecture, IT performance assessment, infrastructure design, systems integration, systems life cycle, technology awareness, and capital planning and investment control. yes
  - b. If not, confirm that the PM has a development plan to achieve competencies either by direct experience or education.
2. Describe the progress of evaluating cloud computing alternatives for service delivery to support this investment. jsc's mission operations directorate continues to research possibility of utilizing nasa cloud computing capacity to support mission systems needs. currently demonstrating ability to virtualize systems in support of future cloud activities.
3. Provide the date of the most recent or planned Quality Assurance Plan 2009-02-05
4.
  - a. Provide the UPI of all other investments that have a significant dependency on the successful implementation of this investment. 026-00-01-05-01-5020-00
  - b. If this investment is significantly dependent on the successful implementation of another investment(s), please provide the UPI(s).
5. An Alternatives Analysis must be conducted for all Major Investments with Planning and Acquisition (DME) activities and evaluate the costs and benefits of at least three alternatives and the status quo. The details of the analysis must be available to OMB upon request. Provide the date of the most recent or planned alternatives analysis for this investment. 2010-08-19
6. Risks must be actively managed throughout the lifecycle of the investment. The Risk Management Plan and risk register must be available to OMB upon request. Provide the date that the risk register was last updated. 2010-07-13



## Section B: Cost and Schedule Performance

Table II.B.1. Comparison of Actual Work Completed and Actual Costs to Current Approved Baseline:

Description of Activity	DME or SS	Agency EA Transition Plan Milestone Identifier	Planned Cost (\$M)	Actual Cost (\$M)	Planned Start Date	Actual Start Date	Planned Completion Date	Actual Completion Date	Planned Percent Complete	Actual Percent Complete
FY09 Contractor Development	DME	*	\$13.4	\$16.1	2009-01-01	2009-01-01	2009-09-30	2009-09-30	100.00%	100.00%
FY09 Contractor Operations	SS	*	\$8.5	\$6.4	2009-01-01	2009-01-01	2009-09-30	2009-09-30	100.00%	100.00%
FY10 contractor maint, operations, sustaining and modification engineering	SS	*	\$33.7	\$31.3	2009-10-01	2009-10-01	2010-09-30	2010-09-30	100.00%	100.00%
FY11 contractor maint, operations, sustaining and modification engineering	SS	*	\$26.7	\$11.7	2010-10-01	2010-10-01	2011-09-30		55.08%	49.23%
FY12 contractor maint, operations, sustaining and modification engineering	SS	*	*	*	2011-10-01	*	2012-09-30	*	*	*
FY13 contractor maint, operations, sustaining and modification engineering	SS	*	*	*	2012-10-01	*	2013-09-30	*	*	*
FY14 contractor maint, operations, sustaining and modification engineering	SS	*	*	*	2013-10-01	*	2014-09-30	*	*	*
FY15 contractor maint, operations, sustaining and modification engineering	SS	*	*	*	2014-10-01	*	2015-09-30	*	*	*

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FY16 contractor maint, operations, sustaining and modification engineering	SS	*	*	*	2015-10-01	*	2016-09-30	*	*	*

2. If the investment cost, schedule, or performance variances are not within 10 percent of the current baseline, provide a complete analysis of the reasons for the variances, the corrective actions to be taken, and the most likely estimate at completion. Not applicable.

3. For mixed lifecycle or operations and maintenance investments an Operational Analysis must be performed annually. Operational analysis may identify the need to redesign or modify an asset by identifying previously undetected faults in design, construction, or installation/integration, highlighting whether actual operation and maintenance costs vary significantly from budgeted costs, or documenting that the asset is failing to meet program requirements. The details of the analysis must be available to OMB upon request. Insert the date of the most recent or planned operational analysis. 2010-07-15

4. Did the Operational analysis cover all 4 areas of analysis: Customer Results, Strategic and Business Results, Financial Performance, and Innovation? yes

Section C: Financial Management Systems

Table II.C.1: Financial Management Systems			
System(s) Name	System acronym	Type of Financial System	BY Funding
*	*	*	*

Section D: Multi-Agency Collaboration Oversight (For Multi-Agency Collaborations only)

Table II.D.1. Customer Table:	
Customer Agency	Joint exhibit approval date
NONE	

Table II.D.2. Shared Service Providers		
Shared Service Provider (Agency)	Shared Service Asset Title	Shared Service Provider Exhibit 53 UPI (BY 2011)
*	*	*

Table II.D.3. For IT Investments, Partner Funding Strategies (\$millions):							
Partner Agency	Partner exhibit 53 UPI (BY 2012)	CY Monetary Contribution	CY “In-Kind” Contribution	CY Fee-for-Service	BY Monetary Contribution	BY “In-Kind” Contribution	BY Fee-for-Service
NONE							

Table II.D.4. Legacy Systems Being Replaced		
Name of the Legacy Investment of Systems	Current UPI	Date of the System Retirement
*	*	*

## Section E: Performance Information

Table I.E.1a. Performance Metric Attributes

Measurement Area (For IT Assets)	Measurement Grouping (For IT Assets)	Measurement Indicator	Reporting Frequency	Unit of Measure	Performance Measure Direction	Baseline	Year Baseline Established for this measure (Origination Date)
Mission and Business Results	System Development	Contact the Support Request (SR) initiator to acknowledge receipt, clarify the requirements, and provide an estimate of the control board presentation date.	quarterly	Contacts	Increase	Contact the SR initiator with 2 days of SR submission 100% of the time.	2010-09-10
			Fiscal Year	Target	Actual Results	Target “Met” or “Not Met”	Last Updated
			2010	Contact the SR initiator with 2 days of SR submission 100% of the time.	97.3%	Not Met	2010-09-17
			2011	Contact the SR initiator with 2 days of SR submission 100% of the time.			2010-09-17
			2012	Contact the SR initiator with 2 days of SR submission 100% of the time.			2010-09-17
Customer Results	Response Time	Implement changes to the baseline designated as non-flight priority 1-4 and return the system to operational status within the period agreed to by the user (return to ops/rto).	quarterly	Response Time	Decrease	Implement scheduled development modification or reconfiguration within 1-7 days of the rto.	2009-01-01
			Fiscal Year	Target	Actual Results	Target “Met” or “Not Met”	Last Updated
			2009	Implement scheduled development	100%	Met	2010-09-17

Processes and Activities	Errors	Software fault density measures software quality. Errors are reported via anomaly reports. Supports the strategic goal of enhancing efficiency in operations and sustaining of the MCC.	modifications or reconfigurations on or before the rto 100% of the time.				
			2010	Implement scheduled development modifications or reconfigurations on or before the rto 100% of the time.	94.2	Not Met	2010-09-17
			2011	Implement scheduled development modifications or reconfigurations on or before the rto 100% of the time.			2010-09-17
			2012	Implement scheduled development modifications or reconfigurations on or before the rto 100% of the time.			2010-09-17
			quarterly	Errors	Decrease	Achieve a software fault density of no more than 1 anomaly per 5 thousand (.20) source lines of code (KSLOC) for mature software.	2009-01-01
			Fiscal Year	Target	Actual Results	Target "Met" or "Not Met"	Last Updated
			2009	Achieve a software fault density of no more than 1 anomaly per 6 thousand (.167) source lines of code (KSLOC) for mature software.	.04%	Met	2010-09-17
			2010	Achieve a software fault density of no more than 1 anomaly per 7 thousand (.143) source lines of code (KSLOC)	.036%	Met	2010-09-17

				for mature software.			
			2011	Achieve a software fault density of no more than 1 anomaly per 8 thousand (.125) source lines of code (KSLOC) for mature software.			2010-09-17
			2012	Maintain a software fault density of no more than 1 anomaly per 8 thousand (.125) source lines of code (KSLOC) for mature software.			2010-09-17
Technology	User Satisfaction	Stakeholders are asked to complete Customer Satisfaction surveys upon completion of project delivery. The responses can be favorable, unfavorable, or neutral.	quarterly	Favorable Surveys	Increase	Receive "favorable" or "neutral" responses 100% of the time.	2010-09-10
			Fiscal Year	Target	Actual Results	Target "Met" or "Not Met"	Last Updated
			2010	Receive "favorable" or "neutral" responses 100% of the time.	100%	Met	2010-09-17
			2011	Receive "favorable" or "neutral" responses 100% of the time.			2010-09-17
			2012	Receive "favorable" or "neutral" responses 100% of the time.			2010-09-17

\* - Indicates data is redacted.